Unit 4

Handling of Basic Masonry Tools

While carrying out the masonry work, mason requires different types of tools. In stone masonry, tools are categorised as dressing tools and masonry construction tools. Stones are available in irregular size and shape. As per the construction requirements, to make them of regular size and shape and to form correct shape, following tools are used by the stone dresser and mason.

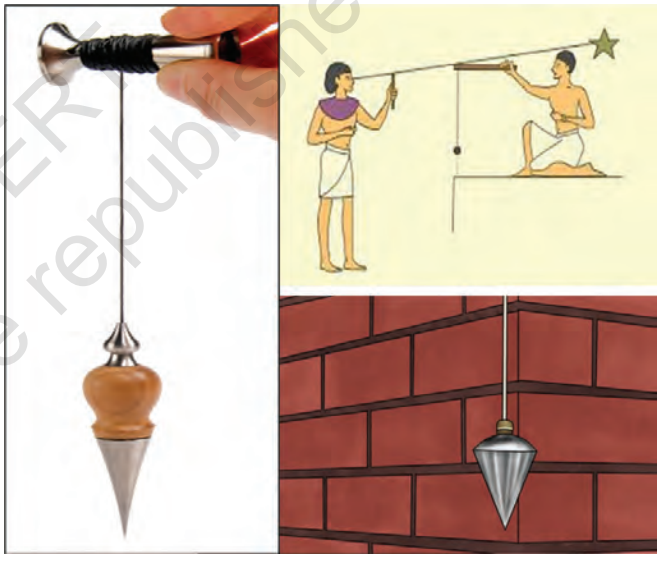

Fig.4.1: Plumb Bob

Types of Masonry Tools

Following are the various types of tools used to carry out masonry work.

(i) **Plumb rule and bob:** is used to check the verticality of the wall, column, wooden frame i.e. door, window etc. It consists of a two-metre long wooden piece whose top portion is attached to a plumb bob. (Fig.4.1).

(ii) **Spirit level:** is used to check the horizontality of the floor, roof, door, window frame etc.(Fig.4.2)

(iii) **Trowel:** is used to lift and spread mortar to form the joints and to cut the bricks.

Fig.4.2: Spirit Level

Fig.4.3: Trowel

It is made of steel blade, shank and wooden handle (Fig.4.3).

(iv) **Square:** is right angle steel piece, which is used to check the right angle (perpendicularity) of the walls, columns etc. (Fig.4.4)

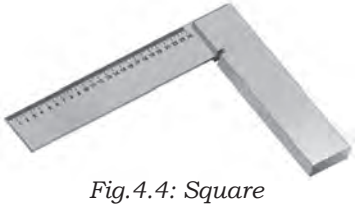

Fig.4.4: Square

(v) **Line and pins:** are used to maintain the alignment of the work in progress i.e. brick or stone masonry. It consists of good quality thread and two pin (Fig.4.5).

Fig.4.5: Line and Pins

(vi) **Chisel:** is used to dress the stones. Chisels are of different shapes and sizes, and are used for different stone cutting and dressing works (Fig.4.6).

(vii) **Bolster:** is used to cut the bricks accurately. The main part of bolster is a steel wide blade (Fig.4.7).

(viii) **Mash hammer:** is used to dress the stones (Fig.4.8).

Fig.4.6: Chisel

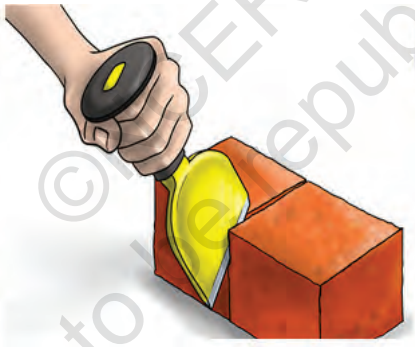

Fig.4.7: Bolster

Fig.4.8: Mash Hammer

(ix) **Scabbling hammer:** is used for breaking the small projection of the stones (Fig.4.9).

(x) **Bevel:** is used to set the angle of the stone, brick machinery, flouring, projections, etc. It consists of two steel blades having slots and fixed together by a thumbscrew. These two blades can be set at any desired angle(Fig.4.10).

(xi) **Spade:** is used to lift the sand, soil, mortar etc. It is also used in excavation of soft soil (Fig.4.11).

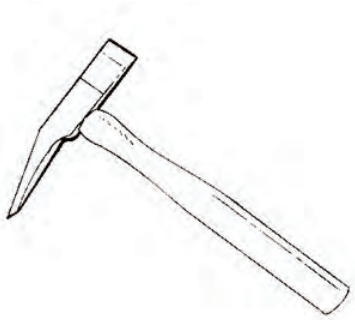

Fig.4.9: Scabbling hammer

Fig.4.10: Bevel

Fig.4.11: Spade

(xii) **Hacking tool:** the plain surface of the concrete is roughened by hacking tool. It is in the form of a hammer with chisel head or point head. The head is made of mild steel and pointed edge is made of tool steel (Fig. 4.12).

(xiii) **Pickaxe:** is used for rough dressing of the stones and to split stones in a quarry (Fig. 4.13).

(xiv) **Crowbar:** is used to make stones in a quarry (Fig. 4.14).

(xv) **Wooden float:** is used to spread the mortar on the surface. It is also used to finish the coat of plaster. It is made of wood (Fig. 4.15).

Fig.4.12: Hacking tool

Fig.4.13: Pickaxe

Fig.4.14: Crow bar

Fig.4.15: Wooden float

Fig.4.16: Metal float

Fig.4.17:Racking needle

Fig.4.18: Scratcher

Fig.4.19: Spall hammer

Fig.4.20: Mortar pan

Fig.4.21: Pointing tool

(xvi) Metal float: is used for laying the mortar as well as to obtain the desired surface finish (Fig. 4.16).

(xvii) Picks and beaters: they are available with double point ends, point end and narrow chisel, point end and wide chisel, etc., having weight 3, 3.2 and 4 kg. Beaters are available in tee-end and square with point ends, which weigh 3.6 and 4.1 kg.

(xviii) Floating rule: is used for checking the level of the plastered surface between the successive screeds.

(xix) Racking needle: for plastering the brick wall, the joints of the brickwork are cleaned to about one centimetre in depth. This process is called racking. The tools used to remove the joint material is called racking needle (Fig. 4.17).

(xx) Scratcher: is used to scratch the surface of partially set plaster in the undercoat to provide a key for the following coat. These are of two types: fan and comb. (Fig.4.18).

(xxi) Pointing tools (*Naylas*): are used for pointing of the stone masonry. They are of three types—small, medium and large. The small *nayla* is

used for vertical joints. For horizontal joints, the long *nayla* first is used to align the joints straight and then the medium size *nayla* is used (Fig.4.21).

(xxii) **Mortar pan:** is a hallow pan made out of pressed mild steel 1 to 1.5 mm thick with edges folded all round. It is used for handling and conveying cement, mortar, sand, etc. (Fig.4.20).

(xxiii) **Brick Hammer:** is used to cut the brick into different shapes and sizes. One end of the hammer is a square and other end is sharp edged.

(xxiv) **Scutch:** is device to dress the cut bricks and for cutting soft bricks.

(xxv) **Spall hammer:** is a heavy hammer used for rough dressing of stone.(Fig.4.19).

Precautions

(i) The tools should be stored in order in a place or rack.

(ii) The tools should not be subjected to continuous dampness, moisture, etc., otherwise the trowel, flat and mortar pan may be damaged by rust.

(iii) During use and transportation, the tools should not be dropped, otherwise, teeth may get damaged.

(iv) While working at height, precautions should be taken, so that either the tools or the material should not fall on anybody standing or moving below in that area.

(v) After the work the tools need to be cleaned and washed with water, especially those handling mortar, concrete etc.

Practical Activity

1. Identify masonry tools available in your class workshop, draw them in your notebook, note down the price and manufacturer's name.

Check Your Progress

A. Fill in the blanks

1. Trowel is used to _____ and spread the _____.
2. The plumb rule and bob is used to check the _____ of the wall.
3. Chisels are used to _____ the stones.
4. A bolster is used to _____ the bricks accurately.
5. Mortar pan is used for handling and _____ cement, mortar, sand, etc.
6. A spirit level is used to check the _____ of the floor, roof, door, window frame, etc.
7. A square is a right-angled steel piece, which is used to check the _____ of the walls, columns, etc.

2. Draw the figure of the tools given below in your notebook.